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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,234	02/27/2004	In-Kwang Yu	6192.0359.US	4801

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EXAMINER	
CHEN, WEN YING PATTY	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,234	YU, IN-KWANG	
	Examiner	Art Unit	
	Wen-Ying P. Chen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11,12 and 16-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8,9,11,12 and 16-19* is/are rejected.

7)☒ Claim(s) *7,20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Feb. 28, 2006 has been entered.

Response to Amendment

Applicant's Amendment filed Feb. 28, 2006 has been received and entered. Claims 13 and 21 are cancelled per the Amendment filed. Therefore, claims 1-9, 11-12 and 16-20 remain pending in the current application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6, 8-9, 11-12 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (US 6414741) in view of Sekiguchi (US 2004/0046909).

With respect to claims 1 and 12 (Amended): Hasegawa et al. disclose a system and method of manufacturing a liquid crystal display comprising:

a panel manufacturing unit for manufacturing a liquid crystal panel assembly including a thin film transistor (TFT) (Fig. 1, element 12) and a liquid crystal layer interposed between the TFT array panel and the opposing array panel (Column 4, lines 22-27);

a printed circuit film bonding unit (Fig. 1, element 22) for bonding a printed circuit film on the panel assembly (Column 4, lines 22-42); and

an inspection unit (Fig. 9, element 104) for inspecting the bonding of the printed circuit film on the panel assembly, wherein the bonding inspection unit comprises two sub-units for inspection before and after the bonding of the PCB, respectively (Column 6, lines 56-67, Column 7, lines 1-67,Column 8, lines 1-62 and Column 12, lines 6-11; wherein the dummy lead wires and the aligning marks are provided for inspection of the bonding of the PCB, before and after bonding), and detects dents generated by the compression (Column 7, lines 60-67; wherein the shape or state of the conductive particles after thermo compression bonding is observed).

However, Hasegawa et al. fail to specifically disclose that the opposing array substrate is of a color filter array panel and that the wire board is specifically a printed circuit board (PCB).

Sekiguchi, on the other hand, discloses a liquid crystal display panel comprising a color filter array panel (Paragraph 0137). Furthermore, Sekiguchi discloses the use of a printed circuit board (PCB), which is also a wiring board, bonding unit for bonding a PCB to the printed circuit film (Paragraph 0144).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture a liquid crystal panel with a color filter array panel and bonding the printed circuit film to a printed circuit board as taught by Sekiguchi with the system and method of manufacturing of the liquid crystal panel taught by Hasegawa et al., since Sekiguchi teaches that the use of PCB enables the application of signals to the driving ICs of the display panel having the same function as the wiring board (Paragraph 0144) and that the color filter array panel provides coloring to the display panel.

As to claim 2: Hasegawa et al. further disclose that the printed circuit film comprises a tape carrier package (Column 4, line 38).

As to claim 3: Hasegawa et al. further disclose that the inspection unit comprises a CCD camera (Fig. 9, element 104).

As to claims 4-6: Hasegawa et al. further disclose that the printed circuit film bonding unit bonds the printed circuit film on the panel assembly with an anisotropic conductive film (ACF) by compression (Column 4, lines 48-52), wherein the ACF comprises an adhesive containing a plurality of conductive particles (Column 7, line 63).

As to claim 8: Hasegawa et al. further disclose that the inspection unit detects alignment of the printed circuit film with the panel assembly (Column 6, lines 56-67).

As to claim 9: Hasegawa et al. further disclose that the bonding inspection unit is incorporated into the printed circuit film bonding unit (Column 6, lines 56-67; Fig. 7, elements 114 and 117; wherein the inspection unit comprises of the dummy lead wires and the branch wires).

As to claim 11: Hasegawa et al. further disclose that the bonding inspection unit wherein one of the sub-units of the bonding inspection unit is incorporated into the printed circuit film bonding unit and the other of the sub-units of the bonding inspection unit is incorporated into the wiring board bonding unit (Column 6, lines 56-67 and Column 8, lines 45-54; wherein the dummy lead wires are incorporated into the printed circuit film bonding unit for before bonding of the wire board inspection and the aligning marks are incorporated into the wire board bonding unit for post bonding of the wire board inspection).

As to claim 16: Hasegawa et al. further disclose that the printed circuit film comprises a tape carrier package (Column 4, line 38).

As to claim 17: Hasegawa et al. disclose that the inspection unit comprises a CCD camera (Fig. 9, element 104).

As to claim 18: Hasegawa et al. further disclose that the printed circuit film bonding unit bonds the printed circuit film on the panel assembly with an anisotropic conductive film (ACF) (Column 4, lines 48-52) containing a plurality of conductive particles (Column 7, line 63).

As to claim 19: Hasegawa et al. further disclose that the bonding of the printed circuit film is performed by thermo compression (Column 7, lines 43-49).

Allowable Subject Matter

Claims 7 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Hasegawa et al. disclose in Column 7 lines 60-67 that when inspecting the compression bonding, the shape or state of the conductive particles and in particular to what extent the conductive particles are crushed and two-dimensionally spread out along the substrate face is observed. However, either alone or in combination, Hasegawa et al. fail to disclose that the inspection of the dent number uniformity is performed, wherein the dent number is the number of conductive particles between gate pads and the TFT array panel and leads on the printed circuit film.

Therefore, claims 7 and 20 are allowable over the prior arts.

Response to Arguments

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed Feb. 28, 2006 have been fully considered but they are not persuasive.

Applicant argues that Hasegawa (US 6414741) does not disclose an inspection step after soldering of the wire board to the TCP. However, Hasegawa discloses in Column 10 lines 40-65 and Column 12 lines 6-11 that an inspection is performed prior to the forming of the light-control

tape, which is to be pasted after the soldering step of the wiring board, by means of using the alignment marks used for the soldering of the wiring board, wherein the alignment marks are part of the inspection unit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen
Examiner
Art Unit 2871

WPC
5/03/06

ANDREW SCHECHTER
PRIMARY EXAMINER